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EXAMINER

KENDALL, CHUCK O

ART UNIT PAPER NUMBER

2122

DATE MAILED: 01/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/887,550

Applicant(s)

LOY ET AL.

Examiner

Chuck Kendall

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 13 August 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-57 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-57 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. This action is in response to the application filed 08/13/04.
2. Claims 1 – 57 have been examined.

### Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 2, 6, 9 – 21, 25, 28, 29 – 40 & 47 – 57 are rejected under 35

U.S.C. 102(b) as being anticipated by Ivanoff USPN 5,517,622 (hereinafter Ivanoff).

Regarding claim 1, Ivanoff anticipates a cluster of computing nodes having shared access to one or more volumes of data storage using a parallel file system, a method (103: 10 – 104: 47), and apparatus (102:11 – 103: 9) for managing the data storage, comprising:

selecting a first one of the nodes to serve as a session manager node (Fig. 6, see CM/SESSION);

selecting a second one of the nodes to serve as a session node for a data management application to run on the one or more volume of data storage using the parallel file system (Fig. 6, CM/SESSION, and MIB, also see 3:40 – 45, for communication manager and adjacent communication manager (session node), for parallel file system);

creating a session of the data management application on the session node ( see 3:40 – 45, for communication manager) by sending a message from the session node to the session manager node, causing the session manager node to distribute information regarding the session among the nodes in the cluster (see in FIG. 6, 2 way

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communication link between CM/SESSION, MIB and CM/network, also see adjacent communication manager from 3: 40 – 45); and

responsive to the information distributed by the session manager node, receiving events at the session node from the nodes in the cluster when the nodes access the one or more volumes of data storage using the parallel file system (see 3:40 – 45, for communication manager and adjacent communication manager, for parallel file system); for processing by the data management application (3: 40 - 50).

Regarding claim 2, a method according to claim 1, and comprising storing the information regarding the session at the session manager node (37:28 – 31, see “safe stores”).

Regarding claim 6, method according to claim 1, wherein the information comprises a list of the events in each file system of relevance to the data management application and respective dispositions of the events on the list (Ivanoff, 66:37 – 45, see event log for list) and wherein receiving the events at the session node comprises receiving messages reporting the events appearing on the list responsive to the dispositions (Ivanoff, 66:32 – 37, see even reporting).

Regarding claims 9, a method according to claim 1, wherein selecting the second one of the nodes comprises selecting a plurality of the nodes to serve as respective session nodes in a plurality of data management sessions (see Fig. 6, CM/SESSION, and MIB), and wherein creating the session comprises informing the session manager node of the plurality of the sessions, causing the session manager node to distribute the information regarding the plurality of the sessions (Also see FIG.9, COMM MGR 1-4).

Regarding claim 10, a method according to claim 9, wherein the first one of the nodes serves as one of the session nodes, in addition to serving as the session manager node (Also see FIG.9, COMM MGR 1, EUA).

Regarding claim 11, a method according to claim 9, wherein selecting the plurality of the nodes comprises selecting multiple session nodes for a distributed data management application running in the cluster (see FIG.9, COMM MGR 1-4).

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Regarding claim 12, a method according to claim 9, wherein selecting the plurality of the nodes comprises selecting the second one of the nodes to serve as the respective session node for a first data management application, and selecting a third one of the nodes to serve as the respective session node for a second data management application (FIG. 12, see CM "A" and CM "B" and FIG.16B, CM "C").

Regarding claim 13, a method according to claim 1, and comprising modifying the session by sending a further message from the session node to the session manager node, causing the session manager node to distribute a notification regarding the modified session to the nodes in the cluster (14:55 – 65).

Regarding claim 14, a method according to claim 1, and comprising destroying the session by sending a further message from the session node to the session manager node, causing the session manager node to distribute a notification regarding the destroyed session to the nodes in the cluster (15:30 – 35).

Regarding claim 15, a method according to claim 1, wherein creating the session of the data management application comprises initiating a data migration application, so as to free storage space on at least one of the volumes of data storage (73:35 – 40).

Regarding claim 16, a method according to claim 1, wherein the information comprises a session identifier, generated at the session manager node, which is unique within the cluster (14: 17 – 21).

Regarding claim 17, which recites similarly to claim 1, see rationale as previously discussed above.

Regarding claim 18, a method according to claim 17, and comprising sending an event message from the at least one of the nodes to the other nodes, so as to inform the data management application sessions on the other nodes of the event (57: 65 – 67, also see 66:20 – 65).

Regarding claim 19, a method according to claim 17, wherein generating the data management event comprises running a user application on the at least one of the nodes, and receiving the request from the user application (14:57).

Regarding claim 20, which is the apparatus version of claim 1, see rationale as previously discussed above.

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Regarding claim 21, which is the apparatus version of claim 2, see rationale as previously discussed above.

Regarding claim 25, which is the apparatus version of claim 6, see rationale as previously discussed above.

Regarding claim 28, which is the apparatus version of claim 9, see rationale as previously discussed above.

Regarding claim 29, which is the apparatus version of claim 10, see rationale as previously discussed above.

Regarding claim 30, which is the apparatus version of claim 11, see rationale as previously discussed above.

Regarding claim 31, which is the apparatus version of claim 12, see rationale as previously discussed above.

Regarding claim 32, which is the apparatus version of claim 13, see rationale as previously discussed above.

Regarding claim 33, which is the apparatus version of claim 14, see rationale as previously discussed above.

Regarding claim 34, which is the apparatus version of claim 15, see rationale as previously discussed above.

Regarding claim 35, which is the apparatus version of claim 16, see rationale as previously discussed above.

Regarding claim 36, which is the apparatus version of claim 17, see rationale as previously discussed above.

Regarding claim 37, which is the apparatus version of claim 18, see rationale as previously discussed above.

Regarding claim 38, which is the apparatus version of claim 19, see rationale as previously discussed above.

Regarding claim 39, which is the product version of claim 1, see rationale as previously discussed above.

Regarding claim 40, which is the product version of claim 2, see rationale as previously discussed above.

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Regarding claim 47, which is the product version of claim 6, see rationale as previously discussed above.

Regarding claim 48, which is the product version of claim 9, see rationale as previously discussed above.

Regarding claim 49, which is the product version of claim 10, see rationale as previously discussed above.

Regarding claim 50, which is the product version of claim 11, see rationale as previously discussed above.

Regarding claim 51, which is the product version of claim 12, see rationale as previously discussed above.

Regarding claim 52, which is the product version of claim 13, see rationale as previously discussed above.

Regarding claim 53, which is the product version of claim 14, see rationale as previously discussed above.

Regarding claim 54, which is the product version of claim 15, see rationale as previously discussed above.

Regarding claim 55, which is the product version of claim 16, see rationale as previously discussed above.

Regarding claim 56, which is the product version of claim 18, see rationale as previously discussed above.

Regarding claim 57, which is the product version of claim 19, see rationale as previously discussed above.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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6. Claims 3, 4, 22, 23, 41 & 42 rejected under 35 U.S.C. 103(a) as being unpatentable over Ivanoff USPN 5,517,622 (hereinafter Ivanoff) in view of Stevenson et al. USPN 5,023,873.

Regarding claims 3, 22 & 41, Ivanoff discloses all the claimed limitations as applied in claim 2 above. Ivanoff doesn't explicitly disclose session being stored at both the session node and at the session manager node, and comprising, following a failure at the session node, receiving the stored information from the session manager node in order to recover the session. However, Stevenson discloses obtaining complete line connection configuration (session) from the link connection configuration manager in and the backup components to use if recovery is necessary (4: 10 – 20). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Ivanoff and Stevenson because, restoring backups sessions from another node, when necessary is an efficient means of resolving session failure.

Regarding claims 4, 23 & 42, a method according to claim 3, Stevenson further discloses wherein at least a portion of the information regarding the session is stored at one or more of the nodes in the cluster other than at the session node and the session manager node, and comprising, following a failure at the first one of the nodes, selecting a third one of the nodes to serve as the session manager node (Stevenson, 3: 5 – 20), and collecting the information from at least one of the session node and the other nodes in the cluster at which the information is stored for use by the third one of the nodes in serving as the session manager node (see Stevenson, FIG.7A, 112,114,116 & 118).

Claims 5, 7, 8, 24, 26, 27, 43, 45 & 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ivanoff USPN 5,517,622 (hereinafter Ivanoff) in view of Dugan et al. USPN 6,363,411 B1.

Regarding claims 5, 24 & 43, Ivanoff discloses all the claimed limitations as applied in claim 1. Ivanoff doesn't explicitly disclose creating the session in accordance with a data management application programming interface (DMAPI).



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However, Dugan does disclose a (DMAPI) in 48:15 – 20, which encapsulates from the DM Client the specific location where the data is needed, also see FIG.5F, 412.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Ivanoff and Dugan because, using a data management API, would enable encapsulation and hence more efficient data communication.

Regarding claims 7, 26 & 45, a method according to claim 6, Dugan further discloses comprising receiving a data management application programming interface (DMAPI) function call from one or more of the nodes other than the session node setting one or more of the dispositions (Dugan, FIG.5C, see 505).

Regarding claims 8, 27 & 46, Ivanoff discloses all the claimed limitations as applied in claim 6 above. Ivanoff doesn't explicitly disclose wherein the session is one of a plurality of sessions in the cluster, and wherein the session manager node coordinates a consistent partitioning of the dispositions among the sessions. However, Dugan discloses, "If data is partitioned among different physical nodes, the location transparency is maintained for the application". Therefore, it would have been obvious to one of ordinary skills in the art at the time the invention was made to combine Ivanoff and Dugan because, partitioning nodes in a network makes the system more manageable.

### ***Response to Arguments***

7. Applicant's arguments with respect to currently amended claims 1 - 57 have been considered but are moot in view of the new ground(s) of rejection.

However, in response to Applicant's comments regarding prior art not teaching running, " ...on the one or more volume of data storage using the parallel file system ", as indicated in Applicant's response of 08/13/2004 on page 22, Examiner believes that Ivanoff does in fact disclose this functionality. As set forth above in claims and as

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recited in column 3 lines 40 – 50, Ivanoff teaches a communication manager (session manager) as well as an adjacent communication manager (session node) in a similar configuration, which Examiner interprets to be equivalent to Applicant's parallel file system.

### Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chuck Kendall whose telephone number is 571-2723698. The examiner can normally be reached on 10:00 am - 6:30pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Dam can be reached on 571-2723695. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CK



**TUAN DAM**  
**SUPERVISORY PATENT EXAMINER**